

Ahmet Burak Kara

akara.engineer@gmail.com, [linkedin.com/in/abkara](https://www.linkedin.com/in/abkara), [akara.engineer](https://github.com/akara)

EDUCATION

Istanbul Medeniyet University

B.S. in Electric & Electronic Engineering

Istanbul, TR

09/2021 – 06/2026

Relevant Coursework: Signals and Systems, Robotics, Control Theory, Autonomous Systems

EXPERIENCE

TUSAŞ Engine Industries Inc. (TEI)

Engineering Intern

Eskisehir, TR

08/2024 – 09/2024

- Collaborated with both embedded software design and hardware design teams.
- Gained experience in developing safety-critical aviation software with DO-178C standards.
- Actively contributed to the execution and monitoring of TEI PD-170 turbo-diesel engine performance tests, ensuring data accuracy during safety-critical evaluation cycles.

BMC Otomotiv Sanayi ve Ticaret A.Ş.

Engineering Intern

Izmir, TR

08/2023 – 09/2023

- Completed summer internship at BMC Automotive's R&D department, involved in the development of an autonomous military vehicle.
- Contributed to both hardware and software aspects of the project, collaborating closely with interdisciplinary teams.
- Gained experience using path-finding algorithms such as A* and RRT using the C/C++ programming language as well as ROS2 and CARLA simulation environments.

PROJECTS

Distributed Computation on GPUs, TUSAŞ LiftUp, Supported by TÜBİTAK 2209-B, 2025

Istanbul, TR

11/2024 – 11/2025

Developed a distributed training infrastructure enabling heterogeneous GPU nodes at TUSAŞ to collaboratively train deep learning models over a custom TCP-based communication layer. Reverse-engineered the YOLOv8 training pipeline to identify synchronization points and designed a socket-based protocol for efficient parameter and loss exchange across nodes. Implemented CPU/GPU benchmarking modules, hardware-eligibility checks, dynamic workload scheduling, and GPU-accelerated parameter aggregation to optimize performance on asymmetric systems. Experiments demonstrated **up to 73% convergence toward ideal training time**, significantly reducing model training duration and improving resource utilization. The project was **funded by the TÜBİTAK 2209-B Research Support Program**, recognizing its innovation and applicability within TUSAŞ's distributed computing environment.

Autonomous Unmanned Surface Vehicle "Barba-Rossa" (Teknofest 2019 – Finalist)

Istanbul, TR

09/2018 – 09/2019

During high school, completed electronics, Arduino, C, and Python training under the instruction of Dr. Tankut Akgül. Formed a three-person engineering team and competed in Teknofest 2019's "Robotik Fetih 1453" challenge with an autonomous unmanned surface vehicle (USV). As team leader, coordinated project direction and team motivation while focusing on computer vision and systems integration. Developed the vessel's object-detection and mission-execution capabilities using OpenCV, NumPy, and custom C-based modules. The USV successfully navigated between red vessels, autonomously retrieved designated green targets, and operated an onboard projectile mechanism to complete mission objectives. The project advanced to the finalist stage of the national competition.

École 42 Piscine & Core Program

Istanbul, TR

Student

02/2022 – 01/2023

Selected for the École 42 Istanbul intensive Piscine program and successfully completed the highly competitive 1-month training based on peer-to-peer and project-driven learning. Expanded C programming proficiency by implementing core standard library functions from scratch and completing collaborative system-level tasks. After ranking high enough to pass the Piscine, advanced to the main curriculum, where I developed low-level memory manipulation algorithms and strengthened my foundations in problem-solving, debugging, and team-based software development.

SKILLS & INTERESTS

- Control Systems, Robotics, Autonomous Systems, Embedded Systems, Distributed Computation, Simulations
- C/C++, Python, ROS2, CUDA, SolidWorks, Proteus, AutoCAD, Adobe Photoshop
- English (Fluent, YDS: 78.75), Turkish (Native)

References

- Dr. Tankut Akgul – Medipol University
- Assoc. Prof. Dr. Haluk Bayram – Istanbul Medeniyet University
- Osman Gokce – TUSAŞ Engine Industries (TEI)
- Deniz Engin Çetin – BMC Otomotiv